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STRIPED CUCUMBER BEETLE

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a, Adult beetle; *b*, underground stem of cucumber seedling cut open to show larva (grub, or "worm") feeding within; *c*, small cucumber plants showing characteristic feeding by adult beetles on leaves and stems. (*a* about 8 times natural size; *b* about twice natural size; *c* about three-fourths natural size.)

(See other side for habits and control)

Bureau of Entomology and Plant Quarantine
United States Department of Agriculture

Picture Sheet No. 7

STRIPED CUCUMBER BEETLE

(*Diabrotica vittata* (F.))

Habits

The striped cucumber beetle, which is one of the most familiar insects to the gardener in the Eastern and Central States, is also one of the most troublesome. The beetles invade cucumber, squash, and melon plantings almost overnight and often destroy tiny seedlings before they push through the soil. The destruction of young plants, the serious injury to older plants due to partial girdling of the stems, and the consumption of portions of the leaves do not comprise all the damage caused by this insect. In addition, the beetles transmit certain serious plant diseases, such as bacterial wilt and mosaic disease. The grubs, or larvae, live on the roots and reduce the vitality of the plants.

The adult beetle spends the winter in protected places, under plant debris, and starts to emerge in the spring about the time the haws are blooming, and usually before the cucurbits are up in the garden. About the time the earlier seedlings are pushing through the soil, the beetles migrate from wild plants, including haw and crab apple blossoms and giant ragweed, to the cultivated fields. The migration to cucurbits is continuous for many days. After feeding for some time, the beetles crawl into cracks in the soil about the plant and deposit eggs. The young larvae, or grubs, which hatch from the eggs, feed on the roots for about a month, pupate in the soil, and emerge as adult beetles.

Control

The control of the cucumber beetle requires care and industry. Although the beetles are very susceptible to ordinary insecticides, their habits make the protection of plants difficult. The beetles feed first on the stems and the under sides of the cotyledons of seedlings, and spend much time in crevices of the soil, thus making it difficult to reach them. Also there is a continuous influx of the beetles to the fields for a period of several weeks. As the plants grow, the beetles congregate on the under side of the leaves, which are prone on the ground.

The best method to prevent injury on young plants is the use of covers, or caps. Any cover which permits sufficient light and air and excludes the beetle is satisfactory, and suburban gardeners often make inexpensive protectors from cheap materials. Generally, however, insecticidal or repellent materials, of which there is a wide choice, are used. Satisfactory results are more dependent on the timely, frequent, and thorough application of dusts or sprays than on the choice of the insecticide.

The materials mentioned below have been used successfully.

Dusts: Calcium arsenate, 1 pound, and gypsum, 9 pounds; rotenone dusts containing 0.75 percent or more of rotenone, made with derris, cube, timbo, or other rotenone-containing roots and a finely ground carrier, such as talc, clay, tobacco dust, or gypsum; pyrethrum dust containing 0.2 to 0.5 percent of pyrethrins; a dust mixture consisting of calcium arsenate 20 pounds, copper oxychloride (containing 25 percent of insoluble copper) 12 pounds, and talc 68 pounds.

Sprays: Bordeaux mixture (3-4-50) plus 2 pounds of calcium arsenate per 50 gallons of spray; one of the rotenone-containing roots (derris, cube, timbo, etc.) and water, to contain 0.015 percent rotenone.

In making the applications, keep in mind the following:

Protect the young seedlings; apply the dust or spray thoroughly so as to cover the plants and the soil completely and to drive the material into the crevices about the stems. The injury to the stems at and below the surface of the soil is probably the most serious damage done by the beetles.

Repeat the applications after rains, and as often as necessary, to keep plants free of beetles until the runners are at least 18 inches long.

Continue the treatments as long as beetles are numerous.

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